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JAMES M. STOVER
NCR CORPORATION
1700 SOUTH PATTERSON BLVD, WHQ4
DAYTON, OH 45479

EXAMINER	
ALI, SYED J	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/675,357	YUNG ET AL.	
	Examiner	Art Unit	
	Syed J Ali	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 7, 11, 21, 25, and 42 are objected to because of the following informalities:

As per claim 7, there is no period at the end of the claim.

As per claim 11 line 5, "in response the launching" should read "in response **to** the launching". Additionally, in line 7, "is required in order" should read "is required in order **to**".

As per claim 21 lines 1-2, "the a controller coupled with the processor" should read "the controller coupled with the processor".

As per claim 25 line 1, "wherein client system comprises" should read "wherein **the** client system comprises".

As per claim 42 line 2, "component" should read "components".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6, 15, 21-25, 27-30, and 35-37 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Tsuchida et al. (USPN 6,256,621) (hereinafter Tsuchida).

As per claim 1, Tsuchida discloses a method of performing parallel data operations upon data in a database, comprising:

receiving a data transaction request in a client system (col. 5 lines 24-33, "Fig. 3 is a block diagram showing an example of the node structure for processing a retrieval request to the database in parallel"); and

executing a plurality of multi-phase parallel tasks in response to the request to perform the data operations upon the data in the database (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate processing parts consisting of the slot sorting process, N-way merge process, and join process in correspondence with the processes in the nodes #9 to #11").

As per claim 2, Tsuchida discloses the method of claim 1, wherein receiving a data transaction request comprises receiving a request for loading data into the database (col. 6 lines

20-26, "the column C1 in Table T1 is equal to the value specified by a user. In the aforementioned query, '?' is a variable part and an actual value is substituted for it when the query is executed").

As per claim 3, Tsuchida discloses the method of claim 1, wherein receiving a data transaction request comprises receiving a request to perform a data transformation operation upon the data in the database (col. 5 line 61 - col. 6 line 26, "By this query, the column 3 in Table T1 and the column C3 in Table T2 can be obtained as output from Table T1 and Table T2 in which the column C1 in Table T1 is equal to the column C1 in Table T2", wherein the data in the tables can be transformed according to a database query).

As per claim 4, Tsuchida discloses the method of claim 3, wherein receiving a request to perform the data transformation operation comprises receiving a request to perform one of a data selection operation, a data validation operation, a data cleansing operation, and a data query operation (col. 5 line 61 - col. 6 line 26, "A query for the database retrieval process is described, for example, in the SQL as shown below").

As per claim 5, Tsuchida discloses the method of claim 1, wherein executing the multi-phase parallel tasks comprises executing each of the parallel tasks in one or more phases (Fig. 4, wherein elements 100, 110, and 120 represent two separate sets of parallel tasks, each of which are executed in one or more phases).

As per claim 6, Tsuchida discloses the method of claim 5, comprising executing a first parallel task in a first number of phases and a second parallel task in a second number of phases (Fig. 4, wherein element 100 is the first parallel task and is executed in two phases and element 110 is the second parallel task and is executed in three phases, and element 120 is the third parallel task and is executed in one phase).

As per claim 15, Tsuchida discloses an apparatus, comprising:

a user interface (col. 6 lines 20-26, "the column C1 in Table T1 is equal to the value specified by a user. In the aforementioned query, '?' is a variable part and an actual value is substituted for it when the query is executed", wherein a user interface must inherently exist for the user to specify such a value or perform queries);

a processor coupled with the user interface, wherein the processor receives a data transaction request from the user interface (col. 4 line 53 - col. 5 line 10, "The DBMS 20 has a ...physical processor 23 for executing a physical process for the database"); and

a controller coupled with the processor (col. 4 line 53 - col. 5 line 10, "The DBMS 20 has a system controller 21 for managing input and output of data in addition to management and control of the entire system"), wherein the controller performs a number of tasks in parallel based upon instructions received from the processor, each tasks performed in a plurality of phases (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate

processing parts consisting of the slot sorting process, N-way merge process, and join process in correspondence with the processes in the nodes #9 to #11").

As per claim 21, Tsuchida discloses the apparatus of claim 15, wherein the controller coupled with the processor, wherein the controller performs a number of tasks in parallel based upon instructions received from the processor, each task performed in a plurality of phases further comprises the controller performing the tasks in a sequence of multiple process steps (Fig. 4, wherein elements 100, 110, and 120 represent two separate sets of parallel tasks, each of which are executed in one or more phases, and the phases are processes that are executed by the processor).

As per claim 22, Tsuchida discloses a system, comprising:

a database system (col. 4 lines 38-52, "Fig. 1 is a block diagram showing the conceptual structure of the database system of this embodiment"; Fig. 1 element 40); and

a client system to implement a plurality of data operations upon the database in parallel (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate processing parts consisting of the slot sorting process, N-way merge process, and join process in correspondence with the processes in the nodes #9 to #11"; Fig. 1, element 20, wherein the database management system is a client system in the sense that it handles requests from the application program and performs data operations upon the database).

As per claim 23, Tsuchida discloses the system of claim 22, wherein the database system is a relational database system (col. 1 lines 20-38, "A database management system..., particularly a relational DBMS processes a query which is represented in a non-procedural database language, decides the internal processing procedure, and executes the query process according to this internal processing procedure").

As per claim 24, Tsuchida discloses the system of claim 23, wherein the database is a parallel database system (col. 5 lines 11-23, "a parallel processor system having a plurality of nodes is constituted. The hardware structure shown in Fig. 2 is a structure for executing the database processing in the database management system shown in Fig. 1 by a plurality of processors in parallel and the processing is distributed to the nodes").

As per claim 25, Tsuchida discloses the system of claim 22, wherein [the] client system comprises:

a processor to receive a data transaction request (col. 4 line 53 - col. 5 line 10, "The DBMS 20 has a ...physical processor 23 for executing a physical process for the database");

a plurality of operators to perform parallel data operations in response to the data transaction request (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate processing parts consisting of the slot sorting process, N-way merge process,

and join process in correspondence with the processes in the nodes #9 to #11", wherein the processing parts perform the parallel data operations);

an operator interface coupled to the operators, wherein the operator interface allows communications between the operators (Fig. 4 element 80, wherein the network facilitates communication between various nodes).

As per claim 27, Tsuchida discloses the system of claim 22, wherein the operators perform at least one of a data extraction function, a data transform function, and a data loading function (col. 6 lines 39-62, "reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process", wherein data retrieval is the equivalent of data extraction).

As per claim 28, Tsuchida discloses an article comprising at least one storage medium containing instructions that when executed cause a client system to:

receive a data transaction request (col. 5 lines 24-33, "Fig. 3 is a block diagram showing an example of the node structure for processing a retrieval request to the database in parallel"); and

execute a plurality of parallel tasks in response to the request to perform data operations upon the data in the database (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate processing parts consisting of the slot sorting process, N-way merge process,

and join process in correspondence with the processes in the nodes #9 to #11") over a network connection (co. 6 lines 27-38, "When the node #12 receives a query, it selects the optimum distribution processing method and instructs each node as to the process to be executed by it via the network 80").

As per claim 29, Tsuchida discloses the article of claim 28, wherein the instructions when executed cause the client system to execute each of the parallel tasks in one or more phases (Fig. 4, wherein elements 100, 110, and 120 represent two separate sets of parallel tasks, each of which are executed in one or more phases).

As per claim 30, Tsuchida discloses the article of claim 29, wherein the instruction when executed cause the client system to execute a first parallel task in a first number of phases and a second parallel task in a second number of phases (Fig. 4, wherein element 100 is the first parallel task and is executed in two phases and element 110 is the second parallel task and is executed in three phases, and element 120 is the third parallel task and is executed in one phase).

As per claim 35, Tsuchida discloses a method of performing parallel data operations upon data in a database, comprising:

receiving a data transaction request (col. 5 lines 24-33, "Fig. 3 is a block diagram showing an example of the node structure for processing a retrieval request to the database in parallel"); and

executing a plurality of synchronized multi-phase parallel tasks in response to the request to perform the data operations upon the data in the database (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate processing parts consisting of the slot sorting process, N-way merge process, and join process in correspondence with the processes in the nodes #9 to #11"; col. 6 line 63 - col. 7 line 23, "The retrieval phase ends at the point of time of the waiting for synchronizing to the end of slot sorting process 180 or earlier", wherein timing is set up such that all the phases of a transaction are synchronized [see Fig. 5]).

As per claim 36, Tsuchida discloses the method of claim 35, wherein executing the multi-phase parallel tasks comprises executing each of the parallel tasks in one or more phases (Fig. 4, wherein elements 100, 110, and 120 represent two separate sets of parallel tasks, each of which are executed in one or more phases).

As per claim 37, Tsuchida discloses the method of claim 36, comprising executing a first parallel task in a first number of phases and a second parallel task in a second number of phases (Fig. 4, wherein element 100 is the first parallel task and is executed in two phases and element 110 is the second parallel task and is executed in three phases, and element 120 is the third parallel task and is executed in one phase).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 7-14, 16-20, 31-34, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchida in view of Lawlor in view of Desai et al. (USPN 5,692,182) (hereinafter Desai).

As per claim 7, Desai discloses the following limitations not shown by Tsuchida, specifically the method of claim 5, further comprising each parallel task providing a code to indicate if the task is to be re-invoked in the next phase (col. 12 lines 5-13, "This embodiment enables a user application to bind a query one time and repetitively run that query against changed data").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai since although Tsuchida discloses performing a database query in multiple phases across multiple tasks, Tsuchida does not take into account variants between specific queries. Specifically, a particular query may not require all phases of the DBMS to execute in order for the query to be processed. In that case, extraneous processing may occur that would add unnecessarily to the transaction cost. By breaking down a task and determining what needs to be done to satisfy the query, as is done by Desai, the DBMS can generate a task plan that makes

optimal use of the available components. Furthermore, Desai allows a query, or part of a query, to be executed repeatedly if the data on which it depends has changed. Thus, a query may be compiled by the system only once, and simply run again if the dependencies change.

As per claim 8, Desai discloses the following limitations not shown by the modified Tsuchida, specifically the method of claim 7, wherein providing the code comprises providing the code to a task coordinator (col. 11 lines 18-35, "If the query 302 is suitable for multi-CPC query parallelism, then the originating DBMS is further called a coordinating DBMS", wherein the DBMS that originates the query and develops the task plan is also called the task coordinator).

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 9, Desai discloses the method of claim 8, wherein the code comprises a first code to indicate that the task coordinator is to invoke a component in the next phase (col. 20 lines 52-67, "In step 930, the parallel task 312 determines the processing is complete or if more rows are to be produced. If more rows are to be produced, the parallel task 312 returns to step 926 where more rows are produced in record out format. This loop of steps 926, 928, and 930 is repeated until all results 404 are produced").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 10, Desai discloses the method of claim 8, wherein the code comprises a second code to indicate that the task is not to invoke a component in the next phase (col. 20 lines 52-67, "In step 930, if no more rows are to be produced, the parallel task 312 enters step 924 and terminates").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 11, Desai discloses the method of claim 1, further comprising:

analyzing the transaction request (col. 11 lines 18-35, "The coordinating DBMS 304 decomposes the query for parallel processing");

creating a task plan in response to the transaction request (col. 11 lines 18-35, "The coordinating DBMS 304...develops a parallel plan 318 for multi-CPCs");

implementing the task plan in a multi-phase organization (col. 11 lines 18-35, "The plan 318 decomposes the query 302 into multiple parallel tasks 312. Each DBMS 304, 306*a*, 306*b* executes the parallel tasks 312 that the coordinating DBMS 304 assigns to it");

executing a plurality of tasks in parallel, in response [to] the launching of the task coordinator function (col. 11 lines 18-35, "The plan 318 decomposes the query 302 into multiple parallel tasks 312. Each DBMS 304, 306*a*, 306*b* executes the parallel tasks 312 that the coordinating DBMS 304 assigns to it").

determining whether an additional phase is required in order [to] execute the task (col. 20 lines 52-67, "In step 930, the parallel task 312 determines the processing is complete or if more rows are to be produced); and

scheduling an additional phase in response to the determination that an additional phase is required (col. 20 lines 52-67, "If more rows are to be produced, the parallel task 312 returns to step 926 where more rows are produced in record out format. This loop of steps 926, 928, and 930 is repeated until all results 404 are produced").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 12, Desai discloses the method of claim 11, wherein implementing the task plan comprises creating a job script (Figs. 7-9, wherein once the task plan has been determined, the control flow follows a scripted procedure that processes queries in parallel across multiple DBMSs).

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 13, Desai discloses the method of claim 11, wherein implementing the task plan comprises:

translating the task plan (col. 11 lines 58-63, "In step 504, the originating DBMS 304 binds the query 302 thereby creating a task plan 318 for executing the query");

selecting a plurality of components to implement the translated task plan (col. 11 lines 18-35, "The plan 318 decomposes the query 302 into multiple parallel tasks 312. Each DBMS 304, 306*a*, 306*b* executes the parallel tasks 312 that the coordinating DBMS 304 assigns to it");

assigning a plurality of processes corresponding to the components Each DBMS 304, 306*a*, 306*b* executes the parallel tasks 312 that the coordinating DBMS 304 assigns to it", wherein each process component corresponds to a particular task, as in the process phases of Tsuchida); and

creating a communications channel to allow for communications between the processes (col. 9 lines 40-54, "A coupling facility 110 is a separate CPC connected to each CPC 102*a*-102*n* via a high speed link such as fiber optical cable. The coupling facility 110 allows for communication and synchronization of the DBMSs 104*a*-104*n* by managing data requests and providing a locking manager").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 14, Tsuchida discloses the method of claim 13, wherein selecting the plurality of components to implement the translated task plan comprises selecting the plurality of components to perform at least one of a data extraction operation, a data transformation operation, and a data loading operation (col. 6 lines 39-62, "reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process", wherein data retrieval is the equivalent of data extraction).

As per claim 16, Desai discloses the following limitations not shown by Tsuchida, specifically the apparatus of claim 15, wherein the processor generates a task plan in response to

the data transaction request (col. 11 lines 18-35, "The coordinating DBMS 304 decomposes the query for parallel processing and develops a parallel plan 318 for multi-CPCs").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 17, Desai discloses the following limitations not shown by Tsuchida, specifically the apparatus of claim 16, wherein the controller comprises a task coordinator to execute the task plan (col. 11 lines 18-35, "If the query 302 is suitable for multi-CPC query parallelism, then the originating DBMS is further called a coordinating DBMS", wherein the DBMS that originates the query and develops the task plan is also called the task coordinator).

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 18, Tsuchida discloses the apparatus of claim 16, wherein the controller further comprises a plurality of components to implement the task plan in parallel (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate processing parts consisting of the slot sorting process, N-way merge process, and join process in correspondence with the processes in the nodes #9 to #11", wherein the different phases of processing each are a component of the task plan that processes the query).

As per claim 19, Tsuchida discloses the apparatus of claim 18, further comprising a communications interface for enabling communications between the components (Fig. 4 element 80, wherein the network facilitates communication between various nodes, as well as the various processing components).

As per claim 20, Tsuchida discloses the apparatus of claim 18, wherein the controller further comprises a storage unit for storing methods and functions to execute the task plan (Claim 5, "A computer readable storage medium storing a query operation program for execution in a database management system having a plurality of database processors and a plurality of functions designating database operation requests to said plurality of database processors").

As per claim 31, Desai discloses the article of claim 29, wherein the instructions when executed cause each parallel task to provide a code to indicate if the task is to be re-invoked in the next phase (col. 12 lines 5-13, "This embodiment enables a user application to bind a query one time and repetitively run that query against changed data").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 32, Desai discloses the article of claim 31, wherein the instructions when executed cause the parallel task to provide the code to a task coordinator (col. 11 lines 18-35, "If the query 302 is suitable for multi-CPC query parallelism, then the originating DBMS is further

called a coordinating DBMS", wherein the DBMS that originates the query and develops the task plan is also called the task coordinator).

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 33, Desai discloses the article of claim 32, wherein the code comprises a first code to indicate that the task coordinator is to invoke a component in the next phase (col. 20 lines 52-67, "In step 930, the parallel task 312 determines the processing is complete or if more rows are to be produced. If more rows are to be produced, the parallel task 312 returns to step 926 where more rows are produced in record out format. This loop of steps 926, 928, and 930 is repeated until all results 404 are produced").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 34, Desai discloses the article of claim 32, wherein the code comprises a second code to indicate that the task is not to invoke the component in the next phase (col. 20 lines 52-67, "In step 930, if no more rows are to be produced, the parallel task 312 enters step 924 and terminates").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 38, Desai discloses the method of claim 36, further comprising each parallel task providing a code to indicate if the task is to be re-invoked in the next phase (col. 12 lines 5-13, "This embodiment enables a user application to bind a query one time and repetitively run that query against changed data").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 39, Desai discloses the method of claim 38, wherein providing the code comprises providing the code to a task coordinator (col. 11 lines 18-35, "If the query 302 is suitable for multi-CPC query parallelism, then the originating DBMS is further called a coordinating DBMS", wherein the DBMS that originates the query and develops the task plan is also called the task coordinator).

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 40, Desai discloses the method of claim 39, wherein the code comprises a first code to indicate that the task coordinator is to invoke a component in the next phase (col. 20 lines 52-67, "In step 930, the parallel task 312 determines the processing is complete or if more rows are to be produced. If more rows are to be produced, the parallel task 312 returns to step 926 where more rows are produced in record out format. This loop of steps 926, 928, and 930 is repeated until all results 404 are produced").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 41, Desai discloses the method of claim 39, wherein the code comprises a second code to indicate that the task is not to invoke a component in the next phase (col. 20 lines 52-67, "In step 930, if no more rows are to be produced, the parallel task 312 enters step 924 and terminates").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Desai for reasons discussed above in reference to claim 7.

As per claim 42, Tsuchida discloses the method of claim 29, wherein the code synchronizes the operation of one or more component[s] (col. 6 lines 39-62, "In Fig. 4, reference numerals 100 and 101 indicate processing parts consisting of the data retrieval process and data distribution process in correspondence with the processes in nodes #1 to #8 shown in Fig. 3. Reference numerals 110 and 111 indicate processing parts consisting of the slot sorting process, N-way merge process, and join process in correspondence with the processes in the nodes #9 to #11"; col. 6 line 63 - col. 7 line 23, "The retrieval phase ends at the point of time of the waiting for synchronizing to the end of slot sorting process 180 or earlier", wherein timing is set up such that all the phases of a transaction are synchronized [see Fig. 5]).

6. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchida in view of Ponnekanti et al. (USPN 6,363,387) (hereinafter Ponnekanti).

As per claim 26, Ponnekanti discloses the following limitations not shown by Tsuchida, specifically the system of claim 22, wherein the processor performs data parsing and data compiling upon the data in the database system (col. 7 lines 10-21, "During system operation, the SQL statements received from the one or more Clients 210 [via Network 220] are processed by Engine 260 of the Database Server System 240. The Engine 260 itself comprises a Parser 261, Normalizer 263, Compiler 265, Execution Unit 268, and Access Methods 269").

It would have been obvious to one of ordinary skill in the art to combine Tsuchida with Ponnekanti since Tsuchida deals with database requests that are submitted as SQL statements, and also the structural components of Tsuchida and Ponnekanti are very similar. Thus, the parsing and compiling of SQL statements, such that the statements may be verified and translated before executing would allow the system to provide more reliable functionality. Specifically, the parser can verify the validity of a statement before it is executed, thus preventing a certain degree of error.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Specifically, the additional reference cited (Cotner et al.) relates to a database management system that executes requests in parallel, though it does not specifically relate to multi-phase tasks or task plans in a database system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William A Grant can be reached on (703) 308-1108. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Syed Ali
December 8, 2003

MAJID A. BANANKHAH
PRIMARY EXAMINER